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PREPOST TEST QUESTIONS ON PRINCIPLES OF WASTEWATER TREATMENT

Federal Water Pollution Control Administration
Cincinnati, Ohio

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Prepost Test Questions

on Principles of Wastewater Treatment

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1. The supernatant liquid removed from sludge is poured into:
   a. a drying bed.
   b. the plant effluent.
   c. the plant influent.

2. The best way to dispose of the gas formed in the digester is to:
   a. burn it in a flare.
   b. use it as fuel.
   c. discharge it into the air.

3. Secondary treatment processes use:
   a. aerobic microorganisms.
   b. anaerobic microorganisms.
   c. only settling processes.

4. Which of the following is <u>least</u> used today in secondary treatment?
   a. activated sludge.
   b. Imhoff tanks.
   c. trickling filters.

5. "Wasting" is:
   a. removal of sludge.
   b. loss of water.
   c. inactivation of enzymes.

6. To prevent the spread of disease, wastewater is usually:

   a. boiled.

   b. chlorinated.

   c. treated with antibiotics.

7. Increasing the temperature:

   a. increases the speed of chemical reactions.

   b. decreases the speed of chemical reactions.

   c. has no effect on the speed of chemical reactions.

8. A digester is run:

   a. open.

   b. closed.

   c. either open or closed.

9. Microorganisms adapt to their surroundings during their:

   a. growth phase.

   b. stationary phase.

   c. lag phase.

10. BOD stands for:

   a. biochemical oxygen demand.

   b. biodegradation of detergents.

   c. bio-organic determination.

11. The volatile solids test measures:

    a. gaseous material.

    b. organic material.

    c. solid material.

12. Biochemical oxidation is also called:

    a. combustion.

    b. biodegradation.

    c. a COD test.

13. During biodegradation which of the following substances would be degraded first?

    a. proteins.

    b. fats.

    c. carbohydrates.

14. All organic materials contain:

    a. carbon.

    b. nitrogen.

    c. phosphorus.

15. Bubbles of air are forced into the wastewater in the:

    a. settling tanks.

    b. activated sludge process.

    c. trickling filter.

16. The bed of a trickling filter usually consists of:

    a. fine sand.

    b. rock the size of large gravel.

    c. activated charcoal.

17. Settling tanks operate most effectively with:

    a. addition of air.

    b. sludge bulking.

    c. a slow flow rate.

18. In a deep lake, you would be most likely to find anaerobic microorganisms growing:

    a. on the surface of the lake, far from the shore.

    b. some distance below the surface.

    c. around the weeds near the shore.

19. The alkalinity of a treatment system should be:

    a. low.

    b. high.

    c. 7.

20. Heat is used for sterilization because:

    a. it causes dormancy of microorganisms.

    b. it increases activity of microorganisms.

    c. it kills microorganisms.

21. If it is not controlled, the pH in a digester would tend to:

    a. decrease.

    b. increase.

    c. stay the same.

22. Which of the following is <u>not</u> done to secondary sludge before disposal?

    a. digestion.

    b. dewatering.

    c. denaturation.

23. Settling processes in a treatment plant may be ineffective if:

    a. the comminutor is not operating.

    b. the pH of the influent is low.

    c. storm sewers and sanitary sewers are not separate.

24. Foam in treatment plants may be caused by:

    a. detergents in the wastewater.

    b. growth of algae.

    c. high carbohydrate levels.

25. pH is a measure of the:

    a. alkalinity.

    b. phosphates.

    c. relative concentration of H^+ and OH^-.

26. Large solid objects are removed in primary treatment by:

a. racks.

b. settling.

c. the pumps.

27. A comminutor is a:

a. connector.

b. grinder.

c. travelling screen.

28. Fine particles settle faster if:

a. a detergent is added.

b. the settling tank is heated.

c. they are flocculated.

29. Reproduction of microorganisms is greatest in the:

a. growth phase.

b. lag phase.

c. death phase.

30. Some microorganisms cannibalize others in the:

a. stationary phase.

b. death phase.

c. lag phase.

31. Food is stored by microorganisms during the:

a. stationary phase.

b. lag phase.

c. growth phase.

32. A "shock load" is an increase in:

a. food.

b. pH.

c. oxidizing agent.

33. At low temperatures,

a. microorganisms become dormant.

b. microorganisms enter the growth phase.

c. enzyme production increases.

34. A neutral solution has a pH of:

a. 10.

b. 3.

c. 7.

35. Fish in a stream may die when raw sewage is dumped in because:

a. the fish eat the decomposed organic material and get sick.

b. the sewage kills fish worms.

c. the microorganisms use up the dissolved oxygen during degradation.

36. As a stream dissolves oxygen from the air, it:

a. destroys the nitrogen in the air.

b. purifies itself.

c. becomes darker.

37. If a small amount of acid or base can be added to a solution without changing its pH, the solution is:

a. neutral.

b. pure.

c. buffered.

38. The best seed for a new treatment plant would most likely be found:

a. in the laboratory.

b. in the receiving waters.

c. in the influent.

39. An oxidation process changes:

a. phosphorus to PH_3.

b. carbon to CO_2.

c. nitrogen to water.

40. A catalyst may be used to:

a. increase the quantity of products formed in a reaction.

b. reverse a reaction.

c. speed up a reaction.

41. An enzyme is a:

a. catalyst.

b. metabolite.

c. oxidizing agent.

42. For growth and reproduction, microorganisms need water, nutrients,

a. oxidizing agents and nitrogen.

b. nitrogen and enzymes.

c. enzymes and oxidizing agents.

43. Microorganisms which help each other are called:

a. symbiotic.

b. pathogenic.

c. autotrophic.

44. A microorganisms that grows only in the complete absence of oxygen is:

a. aerobic.

b. anaerobic.

c. facultative.

45. If a microorganism gets its carbon by feeding on organic material, it is:

a. heterotrophic.

b. autotrophic.

c. carbonate.

46. A biological treatment system should contain:

a. few microorganisms.

b. only one kind of microorganism.

c. many kinds of microorganisms.

47. If plants are choking the receiving waters of a treatment plant, there probably is:

a. too little N or P.

b. too much N or P.

c. too much N or too little P.

48. Alkalies tend to make the pH:

a. higher.

b. lower.

c. stay the same.